



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
WASHINGTON, DC 20460

OFFICE OF CHEMICAL SAFETY
AND POLLUTION PREVENTION

June 26, 2019

Rotam Agrochemical Company, Ltd.
c/o
Keeva Shultz
Wagner Regulatory Associates, Inc.
P.O. Box 640
Hockessin, DE 19707

Subject: Label Amendment – To update spray drift language, clarify the maximum amount applied annually, and other minor revisions
Product Name: Abacus Agricultural Miticide/Insecticide
EPA Registration Number: 83100-4
Application Date: June 25, 2018
Decision Number: 542747

Dear Ms. Shultz:

The amended label referred to above, submitted in connection with registration under the Federal Insecticide, Fungicide and Rodenticide Act, as amended, is acceptable. This approval does not affect any conditions that were previously imposed on this registration. You continue to be subject to existing conditions on your registration and any deadlines connected with them.

A stamped copy of your labeling is enclosed for your records. This labeling supersedes all previously accepted labeling. You must submit one copy of the final printed labeling before you release the product for shipment with the new labeling. In accordance with 40 CFR 152.130(c), you may distribute or sell this product under the previously approved labeling for 18 months from the date of this letter. After 18 months, you may only distribute or sell this product if it bears this new revised labeling or subsequently approved labeling. "To distribute or sell" is defined under FIFRA section 2(gg) and its implementing regulation at 40 CFR 152.3.

Should you wish to add/retain a reference to the company's website on your label, then please be aware that the website becomes labeling under the Federal Insecticide Fungicide and Rodenticide Act and is subject to review by the Agency. If the website is false or misleading, the product would be misbranded and unlawful to sell or distribute under FIFRA section 12(a)(1)(E). 40 CFR 156.10(a)(5) list examples of statements EPA may consider false or misleading. In addition, regardless of whether a website is referenced on your product's label, claims made on the website may not substantially differ from those claims approved through the registration process. Therefore, should the Agency find or if it is brought to our attention that a website contains false or misleading statements or claims substantially differing from the EPA approved registration, the website will be referred to the EPA's Office of Enforcement and Compliance.

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Your release for shipment of the product constitutes acceptance of these conditions. If these conditions are not complied with, the registration will be subject to cancellation in accordance with FIFRA section 6. If you have any questions, please contact Gene Benbow by phone at 703-347-0235, or via email at Benbow.Gene@epa.gov.

Sincerely,

A handwritten signature in blue ink, appearing to read "Gene Benbow".

Gene Benbow, Product Manager 7
Invertebrate & Vertebrate Branch 3
Registration Division (7505P)
Office of Pesticide Programs

[Directions for use booklet/Front cover can be used as front container label]

PULL HERE TO OPEN

RESTRICTED USE PESTICIDE

TOXIC TO FISH, MAMMALS, AND AQUATIC ORGANISMS

FOR RETAIL SALE TO AND USE ONLY BY CERTIFIED APPLICATORS OR PERSONS UNDER THEIR DIRECT SUPERVISION, AND ONLY FOR THOSE USES COVERED BY THE CERTIFIED APPLICATOR'S CERTIFICATION.

GROUP	6	INSECTICIDE
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ABACUS[®]
Agricultural Miticide/Insecticide

ACTIVE INGREDIENT:

Abamectin (CAS Nos: 65195-55-3 and 65195-56-4).....2.0%*

OTHER INGREDIENTS:98.0%

TOTAL: 100.0%

*0.15 lb. Abamectin per gallon

EPA Reg. No. 83100-4

EPA Est. No.: _____

KEEP OUT OF REACH OF CHILDREN
WARNING/AVISO

Si usted no entiende la etiqueta, busque a alguien para que se la explique a usted en detalle.
(If you do not understand the label, find someone to explain it to you in detail.)

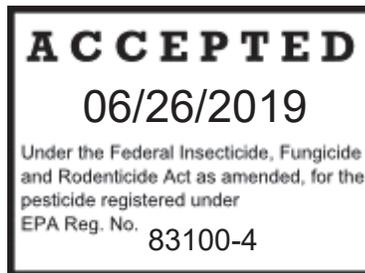
See additional precautionary statements and directions for use inside booklet.

Manufactured By [For]:

Rotam Agrochemical Company Ltd.
26/F, E-Trade Plaza
24 Lee Chung St.
Chai Wan, Hong Kong

Net Contents:

1 GALLON (3.78 Liters)



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FIRST AID (Avermectin B₁)	
If In Eyes	<ul style="list-style-type: none"> • Hold eye open and rinse slowly and gently with water for 15-20 minutes. • Remove contact lenses, if present, after the first 5 minutes, then continue rinsing eye. • Call a poison control center or doctor for further treatment advice.
If Swallowed	<ul style="list-style-type: none"> • Do not induce vomiting unless told to do so by the poison control center or doctor. • Have person sip a glass of water if able to swallow. • Do not give anything by mouth to an unconscious person. • Call poison control center or doctor for treatment advice.
If Inhaled	<ul style="list-style-type: none"> • Move person to fresh air. • If person is not breathing, call 911 or an ambulance, then give artificial respiration, preferably mouth-to-mouth, if possible. • Call poison control center or doctor for treatment advice.
If On Skin Or Clothing	<ul style="list-style-type: none"> • Take off contaminated clothing. • Rinse skin immediately with plenty of water for 15-20 minutes. • Call a poison control center or doctor for further treatment advice.
Note to Physician	
<p>Recommendations for Medical Treatment for ABACUS® Agricultural Miticide/Insecticide (Avermectin B₁) Acute Toxicity: Early signs of intoxication include mydriasis (dilated pupils), ataxia (unsteadiness), and muscle tremors. Toxicity follows accidental ingestion of the concentrate and can be minimized by inducing vomiting within one-half hour of exposure.</p> <p>If toxicity from exposure has progressed to cause severe vomiting, the extent of resultant fluid and electrolyte imbalance should be gauged. Appropriate supportive parenteral fluid replacement therapy should be given, along with other required supportive measures (such as maintenance of blood pressure levels) as indicated by clinical signs, symptoms, and measurements.</p> <p>In severe cases, observations should continue for at least several days until clinical condition is stable and normal. Since avermectin is believed to enhance GABA activity in animals, it is probably wise to avoid drugs that enhance GABA activity (barbiturates, benzodiazepines, valproic acid) in patients with potentially toxic avermectin exposure.</p>	
(Avermectin B₁)	
<p>Have the product container or label with you when calling a poison control center or doctor or going for treatment. For Medical Emergency treatment call your Local Poison Control Center for assistance.</p>	

**PRECAUTIONARY STATEMENTS
HAZARDS TO HUMANS AND DOMESTIC ANIMALS
WARNING/AVISO**

Causes substantial but temporary eye injury. Harmful if swallowed. Prolonged or frequently repeated skin contact may cause allergic reactions in some individuals. Wear protective eyewear (goggles or face shield). Do not get in eyes, on skin, or on clothing. Wash thoroughly with soap and water after handling and before eating, drinking, chewing gum, using tobacco, or using the toilet. Remove and wash contaminated clothing before reuse.

This product contains a chemical (N-methyl pyrrolidone) known to the State of California to cause birth defects or other reproductive harm.

PERSONAL PROTECTIVE EQUIPMENT

Applicators and other handlers must wear:

- Coveralls worn over short-sleeved shirt and short pants
- Chemical-resistant gloves such as barrier laminate or butyl rubber ≥14 mils
- Chemical-resistant footwear plus socks
- Protective eyewear
- Chemical-resistant headgear for overhead exposure
- Chemical-resistant apron when cleaning equipment, mixing or loading

Discard clothing and other absorbent materials that have been drenched or heavily contaminated with this product's concentrate. Do not reuse them. Follow manufacturer's instructions for cleaning/maintaining PPE. If no such instructions for washables, use detergent and hot water. Keep and wash PPE separately from other laundry.

ENVIRONMENTAL HAZARDS

This pesticide is toxic to fish and wildlife. Do not apply directly to water, to areas where surface water is present, or to intertidal areas below the mean high water mark. Do not apply when weather conditions favor

drift from target areas. Do not contaminate water when disposing of equipment wash water or rinsate. This product is highly toxic to bees exposed to direct treatment or residues on blooming crops or weeds. Do not apply this product or allow it to drift to blooming crops or weeds if bees are visiting the treatment area.

Use of this product may pose a risk to threatened and endangered species of fish, amphibians, crustaceans (including fresh water shrimp), and insects. All use of this product in the State of California should comply with the recommendations of the California Endangered Species Project. Before using this product in California, consult with your county agriculture commissioner to determine use limitations that apply in your area. This product may impact surface water quality due to runoff of rain water. This is especially true for poorly draining soils and soils with shallow groundwater. This product is classified as having a medium potential for reaching both surface water and aquatic sediment via runoff for several weeks to months after application. A level, well maintained vegetative buffer strip between areas to which this product is applied and surface water features such as ponds, streams, and springs will reduce the potential loading of abamectin from runoff water and sediment. Runoff of this product will be reduced by avoiding applications when rainfall is forecast to occur within 48 hours.

Physical or Chemical Hazards

Do not use or store near heat or open flame.

DIRECTIONS FOR USE **Restricted Use Pesticide**

It is a violation of Federal law to use this product in a manner inconsistent with its labeling.

Do not apply this product in a way that will contact workers or other persons, either directly or through drift. Only protected handlers may be in the area during application. For any requirements specific to your State or Tribe, consult the agency responsible for pesticide regulation.

AGRICULTURAL USE REQUIREMENTS

Use this product only in accordance with its labeling and with the Worker Protection Standard, 40 CFR Part 170. This Standard contains requirements for the protection of agricultural workers on farms, forests, nurseries, and greenhouses, and handlers of agricultural pesticides. It contains requirements for training, decontamination, notification, and emergency assistance. It also contains specific instructions and exceptions pertaining to the statements on this label about personal protective equipment (PPE) and restricted-entry interval. The requirements on this box only apply to uses of this product that are covered by the Worker Protection Standard.

Do not enter or allow worker entry into treated areas during the restricted-entry interval (REI) of 12 hours.

Exception: For grape girdling, cane turning, and tying in grapes, do not enter or allow worker entry into treated areas during the restricted-entry interval (REI) of 4-days.

PPE required for early entry to treated areas that is permitted under the Worker Protection Standard and involves contact with anything that has been treated, such as plants, soil, or water is:

- Coveralls over short-sleeved shirt and short pants
- Chemical-resistant gloves such as barrier laminate or butyl rubber ≥ 14 mils
- Chemical-resistant footwear plus socks
- Protective eyewear
- Chemical-resistant headgear for overhead exposure

FAILURE TO FOLLOW DIRECTIONS AND PRECAUTIONS ON THIS LABEL MAY RESULT IN CROP INJURY, POOR PEST CONTROL, AND/OR ILLEGAL RESIDUES.

PRODUCT INFORMATION

Thorough coverage is essential for good mite and insect control on crops.

Do not apply ABACUS® Agricultural Miticide/Insecticide by aerial application in New York State.

This product contains a chemical known to the State of California to cause birth defects or other reproductive harm.

ABACUS® Agricultural Miticide/Insecticide is an emulsifiable concentrate that will control certain pests on the crops listed on this label when applied according to the Directions for Use.

ABACUS® Agricultural Miticide/Insecticide has been tested for phytotoxicity and has a wide margin of safety on a variety of crops. ABACUS® Agricultural Miticide/Insecticide has also been shown to be compatible with many

commonly used pesticides, crop oils, and nutritional sprays. To avoid illegal crop residues, ABACUS® Agricultural Miticide/Insecticide **may** be mixed with a non-phytotoxic, non-ionic activator type wetting, spreading and/or penetrating spray adjuvant or horticultural oil (not a dormant oil). Non-ionic activator type wetting, spreading and/or penetrating spray adjuvants include nonionic surfactants (NIS) with at least 75% surface active agent and crop oil concentrates (COC), vegetable oil concentrates (VOC), methylated seed/vegetable oils (MSO) and organosilicones (OS) with at least 15% emulsifiers/surfactants and include blends of these non-ionic activator type spray adjuvants.

However, since it is not possible to test a large number of possible mixtures, the user should pre-test to assure the physical compatibility and lack of phytotoxicity effect of any proposed mixtures with ABACUS® Agricultural Miticide/Insecticide.

See Direction for Use for specific adjuvant recommendations. Spray adjuvants must be compatible with ABACUS® Agricultural Miticide/Insecticide and must be used at concentrations specified on the **spray adjuvant product label directions** for use for the targeted crop unless more specific directions are provided in the **Directions for Use** for individual crops on this label.

Do not use binder or sticker type adjuvants because these type adjuvants may reduce translaminar movement of the active ingredient into the plant.

CHEMIGATION

Do not apply this product through any type of irrigation system.

SPRAY DRIFT

Aerial Applications:

- Do not release spray at a height greater than 10 ft above the ground or vegetative canopy, unless a greater application height is necessary for pilot safety.
- Applicators are required to use a medium or coarser droplet size (ASABE S572.1).
- Do not apply when wind speeds exceed 15 mph at the application site. If the wind speed is greater than 10 mph, the boom length must not exceed 65% of the wingspan for fixed wing aircraft or 75% of the rotor diameter for helicopters. Otherwise, the boom length must not exceed 75% of the wingspan for fixed wing aircraft or 90% of the rotor diameter for helicopters.
- Applicators must use ½ swath displacement upwind at the downwind edge of the field.
- Do not apply during temperature inversions.

Airblast applications:

- Sprays must be directed into the canopy.
- Do not apply when wind speeds exceed 15 miles per hour at the application site.
- User must turn off outward pointing nozzles at the row end and when spraying the outer row.
- Do not apply during temperature inversions.

Ground Boom Applications:

- User must only apply with the release height recommended by the manufacturer, but no more than 4 feet above the ground or crop canopy.
- Applicators are required to use a medium or coarser droplet size (ASABE S572.1).
- Do not apply when wind speeds exceed 15 miles per hour at the application site.
- Do not apply during temperature inversions.

Boomless Ground Applications:

- Applicators are required to use a medium or coarser droplet size (ASABE S572.1) for all applications.
- Do not apply when wind speeds exceed 15 miles per hour at the application site.
- Do not apply during temperature inversions.

SPRAY DRIFT ADVISORIES

THE APPLICATOR IS RESPONSIBLE FOR AVOIDING OFF-SITE SPRAY DRIFT.
BE AWARE OF NEARBY NON-TARGET SITES AND ENVIRONMENTAL CONDITIONS.

IMPORTANCE OF DROPLET SIZE

An effective way to reduce spray drift is to apply large droplets. Use the largest droplets that provide target pest control. While applying larger droplets will reduce spray drift, the potential for drift will be greater if applications are made improperly or under unfavorable environmental conditions.

Controlling Droplet Size – Ground Boom

- Volume - Increasing the spray volume so that larger droplets are produced will reduce spray drift. Use the highest practical spray volume for the application. If a greater spray volume is needed, consider using a nozzle with a higher flow rate.
- Pressure - Use the lowest spray pressure recommended for the nozzle to produce the target spray volume and droplet size.
- Spray Nozzle - Use a spray nozzle that is designed for the intended application. Consider using nozzles designed to reduce drift.

Controlling Droplet Size – Aircraft

- Adjust Nozzles - Follow nozzle manufacturers' recommendations for setting up nozzles. Generally, to reduce fine droplets, nozzles should be oriented parallel with the airflow in flight.

Boom-less Ground Applications:

- Setting nozzles at the lowest effective height will help to reduce the potential for spray drift.

Handheld Technology Applications:

- Take precautions to minimize spray drift.

BOOM HEIGHT – Ground Boom

For ground equipment, the boom should remain level with the crop and have minimal bounce.

RELEASE HEIGHT - Aircraft

Higher release heights increase the potential for spray drift.

SHIELDED SPRAYERS

Shielding the boom or individual nozzles can reduce spray drift. Consider using shielded sprayers. Verify that the shields are not interfering with the uniform deposition of the spray on the target area.

TEMPERATURE AND HUMIDITY

When making applications in hot and dry conditions, use larger droplets to reduce effects of evaporation.

TEMPERATURE INVERSIONS

Drift potential is high during a temperature inversion. Temperature inversions are characterized by increasing temperature with altitude and are common on nights with limited cloud cover and light to no wind. The presence of an inversion can be indicated by ground fog or by the movement of smoke from a ground source or an aircraft smoke generator. Smoke that layers and moves laterally in a concentrated cloud (under low wind conditions) indicates an inversion, while smoke that moves upward and rapidly dissipates indicates good vertical air mixing. Avoid applications during temperature inversions.

WIND

Drift potential generally increases with wind speed. AVOID APPLICATIONS DURING GUSTY WIND CONDITIONS.

Applicators need to be familiar with local wind patterns and terrain that could affect spray drift.

RESISTANCE MANAGEMENT

For resistance management, ABACUS® Agricultural Miticide/Insecticide contains abamectin and is classified as a Group 6 insecticide, chloride channel activators.

Any insect population may contain individuals naturally resistant to ABACUS® Agricultural Miticide/Insecticide and other Group 6 insecticides. The resistant individuals may dominate the insect population if this group of insecticides is used repeatedly in the same fields. Appropriate resistance-management strategies should be followed.

To delay insecticide resistance, take the following steps:

- Rotate the use of ABACUS® Agricultural Miticide/Insecticide or other Group 6 insecticides within a growing season, or among growing seasons, with different groups that control the same pests.
- Use tank mixtures with insecticides from a different group that are equally effective on the target pest when such use is permitted. Do not rely on the same mixture repeatedly for the same pest population. Consider any known cross-resistance issues for the targeted pests between the individual components of a mixture.
- In addition, consider the following recommendations provided by the Insecticide Resistance Action Committee (IRAC):
 - Individual insecticides selected for use in mixtures should be highly effective and be applied at the rates at which they are individually registered for use against the target species.

- Mixtures with components having the same IRAC mode of action classification are not recommended for insect resistance management.
 - When using mixtures, consider any known cross-resistance issues between the individual components for the targeted pest(s).
 - Mixtures become less effective if resistance is already developing to one or both active ingredients, but they may still provide pest management benefits.
 - The insect resistance management benefits of an insecticide mixture are greatest if the two components have similar periods of residual insecticidal activity. Mixtures of insecticides with unequal periods of residual insecticide activity may offer an insect resistance management benefit only for the period where both insecticides are active.
- Adopt an integrated pest management program for insecticide/acaricides use that includes scouting, uses historical information related to pesticide use, crop rotation, record keeping, and which considers cultural, biological and other chemical control practices.
 - Monitor after application for unexpected target pest survival. If the level of survival suggests the presence of resistance, consult with your local university specialist or certified pest control advisor.
 - Contact your local extension specialist or certified crop advisors for any additional pesticide resistance-management and/or IPM recommendations for the specific site and pest problems in your area.
 - For further information or to report suspected resistance contact Rotam at 1-866-927-6826.

CROP USE DIRECTIONS

Apples: For control of white apple leafhopper, tentiform leafminers, European red mites, two-spotted spider mites, and McDaniel spider mites (Ground Application Only).

APPLES APPLICATION RATES

Pests	For Dilute Sprays ¹ fl. oz. ABACUS® Agricultural Miticide/Insecticide/100 gals.	For Concentrate Sprays ² fl. oz. ABACUS® Agricultural Miticide/Insecticide/A
Two-spotted spider mite McDaniel spider mite European red mite Tentiform leafminers White apple leafhopper	2.5 - 5.0	10 – 20
Horticultural Spray Oil* (For best results, use oil with Abacus)	0.25% or 1 gal./A	Minimum of 1 gal./A

*Not a dormant oil.

¹The rate of ABACUS® Agricultural Miticide/Insecticide per 100 gals. is based on a volume of 400 gals./A dilute spray.

²To determine the amount of product per acre for concentrate sprays, first determine the amount that would be required in a full cover dilute spray. Use the same amount of product per acre in concentrate sprays as would be required for the dilute sprays to the same orchard/grove. This may result in use of less than 10 fl. oz./A on small trees.

Application Instructions - Apples

- ABACUS® Agricultural Miticide/Insecticide may be applied using conventional dilute or concentrate ground sprayers calibrated to deliver sufficient water for thorough coverage. Gallonage of spray will vary with size and number of trees per acre and density of foliage. In any case, thorough coverage is essential for good spider mite and insect control.
- For best results, apply in combination with horticultural spray oil (not a dormant oil) as directed. Applications without horticultural spray oil* may result in reduced efficacy and/or residual control.
- Do not graze treated orchards.
- For best results, use ABACUS® Agricultural Miticide/Insecticide in combination with a horticultural spray oil* approved for use on apples. Apply ABACUS® Agricultural Miticide/Insecticide when spider mite or insect thresholds are reached. A second application may be made if necessary to maintain control.
- **White Apple Leafhopper (Not for use west of the Rocky Mountains):** Application of ABACUS® Agricultural Miticide/Insecticide is limited only to first generation white apple leafhopper. Apply soon after petal fall in combination with horticultural spray oil*.
- **Spider Mites:** For best results, apply before a threshold of 5 spider mites per leaf is reached. Residual spider mite control with ABACUS® Agricultural Miticide/Insecticide in combination with Horticultural spray oil* is greater from spray deposits on newer leaves compared to older. Applications of ABACUS® Agricultural Miticide/Insecticide for spider mite control should be limited to a period extending from petal fall through six weeks following petal fall.
- **Tentiform Leafminers:** For best results, apply against egg (to control new hatch) and early sap feeder stages of first and second generation tentiform leafminers when locally established thresholds have been reached. Do not apply during bloom.

Use Restriction - Apples

- Do not exceed 20 fl. oz. (0.023 lb. of a.i./A) of this product or any other foliarly applied abamectin containing product per acre per application or 40 fl. oz./A (0.047 lb. of a.i./A) in a year.
- Do not make more than 2 applications per year of this product or any other foliarly applied abamectin containing product.
- Do not apply in less than 40 gals. of water per acre.
- If a second application is necessary, do not retreat within 21 days.
- Do not apply within 28 days of harvest.
- Do not apply by aircraft.
- ABACUS® Agricultural Miticide/Insecticide in combination with horticultural spray oil* may cause fruit injury to certain varieties of apples, e.g., russetting on light-skinned varieties such as Golden Delicious, when used alone or when other products are applied sequentially. The Directions for Use and Precautions on horticultural spray oil labels, as well as precautions in official spray guides should be followed carefully when using ABACUS® Agricultural Miticide/Insecticide in combination with horticultural spray oil (not a dormant oil).
- Do not graze treated orchards.

Avocados: For control of Avocado thrips.**AVOCADOS APPLICATION RATES**

Pests	fl. oz. ABACUS® Agricultural Miticide/Insecticide/A
Avocado Thrips (<i>Scirtothrips perseae</i>)	10.0 - 20.0 Do not use less than 10 fl. oz. of ABACUS® Agricultural Miticide/Insecticide/A
Horticultural oil (not a dormant oil)	Minimum 1 to 4% v/v

Application Instructions - Avocados

Note: ABACUS® Agricultural Miticide/Insecticide may be applied using ground application equipment or aircraft. Aerial application is permitted because of its importance to the avocado growing industry. However, aerial application is not the preferred method of application for the best control of thrips. With aerial application, spray coverage and the resulting control of thrips is less than with ground application. For this reason, the user accepts all liability for the level and duration of control of thrips when ABACUS® Agricultural Miticide/Insecticide is aerially applied.

Gallons of spray will vary with size and number of trees per acre and density of foliage. In any case, thorough coverage is essential for good mite and insect control.

- For best results, apply when immature thrips are first observed but before numbers exceed 5 immature thrips per leaf/fruit. Use 10 - 15 fl. oz. of product/A for low* to moderate* infestations and 15 - 20 fl. oz. of product/A for high* or severe* infestations. Add a 1.0% - 4% NR (narrow range) 415 oil in combination with a horticultural spray oil (not a dormant oil) approved for use on avocados.
- Make a second application, if needed, to maintain control, but wait at least 30 days after the first application to retreat. (**See Use Restrictions**)
- **For Ground Application:** If spray volume is greater than 400 gals./A, apply ABACUS® Agricultural Miticide/Insecticide at a rate of 2.5 fl. oz. per 100 gals. of water plus 1.0% - 4.0% of an NR 415 oil.

Note: To prevent crop injury, observe all precautions and restrictions on the oil label. When using oil concentrations above 2.0% treat a small test area before making a large-scale application.

*Thrips Infestation Level	Number of immature thrips per leaf/fruit
Low	1 - 2
Moderate	3 - 4
High/Severe	More than 5

Use Restrictions - Avocados

- Do not apply within 14 days of harvest.
- Ground and aerial application permitted.
- Do not apply in less than 100 gals. of water with ground equipment or 50 gals. of water with aircraft.
- Do not apply more than 20 fl. oz./A (0.0233 lb. of a.i./A) per application of this product or any other foliarly applied abamectin containing product.
- Do not apply at intervals of less than 30 days.
- Do not make more than 2 applications per year of this product or any other foliarly applied abamectin containing product.

- Do not apply more than 40 fl. oz./A (0.047 lb. of a.i./A) per year of this product or any other foliarly applied abamectin containing product.
- Do not allow livestock to graze in treated orchards.

Celeriac (*Apium graveolens*): For control of two-spotted spider mites.

CELERIAC APPLICATION RATE

Pests	fl. oz. ABACUS® Agricultural Miticide/Insecticide/A
Two-spotted spider mites	16.0

Application Instructions - Celeriac

- ABACUS® Agricultural Miticide/Insecticide may be applied using conventional or concentrate sprayers calibrated to deliver sufficient water for thorough coverage of the foliage.
- For best results, use in combination with a non-ionic surfactant.
- Apply when mites first appear and repeat as necessary to maintain control.

Use Restrictions - Celeriac

- Do not apply at less than 7 day intervals (PHI).
- Do not exceed 48 fl. oz./A (0.056 lb. of a.i./A) after transplanting of this product or any other foliarly applied abamectin containing product per year.
- Do not apply within 7 days of harvest.
- Do not apply in less than 20 gals. of water per acre.
- For resistance management purposes, use no more than 2 sequential applications of this product or any other foliarly applied abamectin containing product.
- Ground Application Only.

Citrus Fruit Crops (Crop Group 10): Crops in this group are: Calamondin, Citrus citron, Citrus hybrids (includes chironja, tangelo, tangor), Grapefruit, Kumquat, Lemon, Lime, Mandarin (tangerine), Sour orange, Sweet orange, Pummelo, and Satsuma mandarin

For control of Asian citrus psyllid, Broad mite, Citrus bud mite, Citrus leafminer, Citrus rust mite, Citrus thrips, and Two-spotted spider mite.

CITRUS FRUIT CROPS APPLICATION RATES

Pests	For Dilute Sprays ¹	For Concentrate Sprays ²
	fl. oz. ABACUS® Agricultural Miticide/Insecticide/100 gals.	fl. oz. ABACUS® Agricultural Miticide/Insecticide/A
Asian citrus psyllid	-	10-20 ³
Broad mite	1.0 - 2.0	10-20 ³
Citrus bud mite	1.0 - 2.0	10-20 ⁴
Citrus leafminer	-	5-20 ³
Citrus rust mite	0.5 - 2.0	5-20 ³
Citrus thrips	-	10-20 ⁵
Two-spotted spider mite	1.0 - 2.0	10-20

¹The rate of ABACUS® Agricultural Miticide/Insecticide per 100 gals. is based on a volume of 1,000 gals./A dilute spray.

²For concentrate sprays, adjust the dosage to apply an amount /A equal to that used in full cover dilute spray.

³Ground Application: For best results, use 150 - 300 gals./A of spray mix with a minimum of 3 gals./A of horticultural spray oil* and apply at a ground speed of 1 to 1.5 mph.

⁴For best results, use 500 gals./A of spray mix with a minimum of 0.5% horticultural spray oil*.

⁵For best results, use 100 - 250 gals./A of spray mix applied to achieve outside coverage.

*Not a dormant oil.

Application Instructions - Citrus Fruit Crops

ABACUS® Agricultural Miticide/Insecticide may be used with a minimum of 0.20% horticultural spray oil* in the spray mixture or not less than 1.0 gal. of oil/A (except when specified differently below).

- Asian Citrus Psyllid:** Apply ABACUS® Agricultural Miticide/Insecticide to protect newly expanding foliage flush during the spring, summer or fall. ABACUS® Agricultural Miticide/Insecticide will only control adults and nymphs present at the time of application.
- Mites:** Apply when mites first appear during spring, summer, and/or fall.
- Citrus Bud Mite:** For best results, time the spray at "bud swell."
- Citrus Leafminer:** Apply to protect new growth during spring, summer, or fall.
- Citrus Thrips:** Application targeted for citrus thrips will only control the current generation and must be correctly timed. Apply when economic thresholds have been reached (after egg hatch has begun – preferably early to mid-hatch).

Ground Instructions - Citrus Fruit Crops

Apply using conventional dilute or concentrate ground sprayers calibrated to deliver sufficient water for thorough coverage (or outside coverage for citrus leafminers and citrus thrips).

Aerial Application - Citrus Fruit Crops

Thorough spray coverage is essential for good mite and insect control. Spray gallonage may vary depending on size and number of trees per acre as well as density of foliage.

Use Restrictions - Citrus Fruit Crops

- Do not apply within 7 days of harvest (PHI).
- **Application Method:**
To control citrus leafminer – Ground or aerial application is permitted: however, do not apply with aircraft to citrus in California. For Aerial application use a minimum of 10 gallons of finished spray volume per acre. Under conditions such as high pest populations, dense foliage, or adverse application conditions (such as high temperatures) use a greater volume of water to insure adequate coverage.
All Other Pests – Ground application only. Do not apply with aircraft.
- To manage resistance do not use in citrus nurseries.
- Do not apply at intervals of less than 30 days.
- Do not apply more than 40 fl. oz./A (or 0.047 lb. a.i./A) of this product or any other foliarly applied abamectin containing product in a year.
- Do not make more than 3 applications in a year.
- Do not allow livestock to graze in treated orchards.

Cotton: For control of two-spotted spider mites, carmine spider mites, Pacific spider mites, and strawberry spider mites.

COTTON APPLICATION RATES

Spider Mites	fl. oz. ABACUS® Agricultural Miticide/Insecticide/A	
	Mid-season/Lay-by	Early Season
Two-spotted Carmine Pacific Strawberry	8 - 16	4 - 6

Application Instructions - Cotton

ABACUS® Agricultural Miticide/Insecticide is an emulsifiable concentrate which, when mixed with water according to the Directions for Use will control spider mites (two-spotted, carmine, Pacific and strawberry) on cotton.

- Use 8 - 16 fl. oz. of ABACUS® Agricultural Miticide/Insecticide per acre depending on size of the plant and density of the foliage.
- Apply with ground sprayers or aerially by fixed-wing aircraft or helicopter in a minimum of 5 gals. of water per acre to provide thorough coverage.
- Begin application when mites are first noticed and repeat if necessary.
- For use on early season cotton, apply when cotton is under 10 inches in height. Apply at a rate of 4 - 6 fl. oz. of ABACUS® Agricultural Miticide/Insecticide per acre by ground equipment only. Do not use less than 4 fl. oz./A.

Use Restrictions - Cotton

- Do not apply within **20 days** of harvest (PHI).
- **Application Method:** Ground or aerial application is permitted.
- Do not apply in fewer than 5 gallons of water per acre. Use sufficient volume to insure thorough coverage.
- Do not apply more than 16 fl. oz./A (0.019 lb. a.i./A) of ABACUS® Agricultural Miticide/Insecticide or any other foliarly applied abamectin containing product per application.
- Do not apply at intervals of 21 days.
- Do not apply more than 32 fl. oz./A (0.038 lb. a.i./A) of this product or any other foliarly applied abamectin containing product per year.
- Do not apply more than 2 application of ABACUS® Agricultural Miticide/Insecticide or any other foliarly applied product containing abamectin per year.
- Do not feed or allow livestock to graze treated cotton.

Cucurbits (Crop Group 9): (Chayote, Chinese Waxgourd, Citron Melon, Cucumbers, Gherkin, Edible Gourds (including: hyotan, cucuzza, hechima, Chinese okra); *Momordica* spp. (including:

balsam, apple, balsam pear, bittermelon, Chinese cucumber); Muskmelon, Cantaloupe, Pumpkin, Summer Squash, Winter Squash, (Squash includes: butternut squash, calabaze, hubbard squash, acorn squash, spaghetti squash); Watermelon)

For control of spider mites and leafminers.

CUCURBITS APPLICATION RATES

Pests	fl. oz. ABACUS® Agricultural Miticide/Insecticide/A
Leafminers Spider mites	8.0 - 16.0

Application Instructions - Cucurbits

- Mix with water as indicated below and apply thoroughly by ground or air as a foliar spray to ensure good upper and lower leaf coverage.
- Use 8 fl. oz./A for low to moderate infestations and 16 fl. oz./A for severe infestations.
- Apply when adult leafminer flies or spider mites are first observed and repeat applications as necessary to maintain control within constraints of a sound resistance management program.

Use Restrictions - Cucurbits

- Do not exceed 48 fl. oz./A (0.056 lb. of a.i./A) in a year of this product or any foliarly applied abamectin containing product.
- Do not apply within 7 days of harvest (PHI).
- Do not apply at less than 7 day intervals.
- Do not apply in less than 20 gals. of water per acre by ground or less than 5 gals. of water by air.
- Do not make more than 2 sequential applications of this product or any foliarly applied abamectin containing product.
- Do not exceed a maximum of 16 fl. oz per acre (0.019 lb. a.i./A) of this product or any other foliarly applied abamectin containing product in a single application.
- Do not apply by aircraft in New York State.

Dry Beans: Crops include: *Cicer arietinum* (chickpea, garbanzo bean), *Lupinus* spp. (including sweet lupine, white sweet lupine, white lupine, and grain lupine), *Phaseolus* spp. (including kidney bean, lima bean, mung bean, navy bean, pinto bean, snap bean, and waxbean), *Vicia faba* (broad bean, fava bean), and *Vigna* spp. (including adzuki bean, asparagus bean, blackeyed pea, catjang, Chinese longbean, cowpea*, crowder pea, moth bean, mung bean, rice bean, southern pea, urd bean, and yardlong bean)

*For use on cowpeas that are grown only for dry seed. Do not allow livestock to graze cowpea forage and do not harvest cowpea forage or hay for use as livestock feed.

For control of *Liriomyza* leafminers and Spider Mites.

Mix with water as indicated below. Thorough coverage of the crop canopy is essential for optimum results. Inadequate coverage can result in reduced control.

Note:

- Apply ABACUS® Agricultural Miticide/Insecticide with ground equipment or aircraft.
- For best control apply ABACUS® Agricultural Miticide/Insecticide with ground application equipment. With aerial application, the resulting control of leafminers and spider mites could be less than with ground application.

DRY BEANS APPLICATION RATES

Pests	fl. oz. ABACUS® Agricultural Miticide/Insecticide /A
<i>Liriomyza</i> leafminers Spider mites	8.0 - 16.0

Application Instructions - Dry Beans

- Use 8 - 12 fl. oz./A for low to moderate infestations and 13 - 16 fl. oz./A for high infestations.
- **Leafminers and Spider Mites:** Apply when adult leafminer flies or spider mites are first observed and repeat application, as needed, to maintain control within constraints of a sound resistance management program. (See Use Restrictions)

Use Restrictions - Dry Beans

- Do not apply within 7 days of harvest (PHI).
- Ground or aerial application permitted; however, do not apply with aircraft in New York State.

- Do not apply in less than 10 gals. of water/A with ground application equipment. Do not apply in less than 5 gals. of water/A with aircraft. Under conditions such as high pest populations, dense foliage, or adverse application conditions (such as high temperatures), use a greater volume of water to ensure adequate coverage.
- Do not apply more than 16 fl. oz./A (or 0.019 lb. a.i./A) of this product or any other foliarly applied abamectin-containing product per application.
- Do not apply at intervals of less than 6 days.
- Do not make more than 2 sequential applications of this product or any other foliarly applied abamectin-containing product per year.
- Do not apply more than 48 fl. oz./A (or 0.056 lb. a.i./A) of this product or any other foliarly applied abamectin containing product in a year.

Fruiting Vegetables Crops (Crop Group 8): Crops in this group are: Eggplant, Groundcherry, Pepino, Peppers (includes bell pepper, chili pepper, cooking pepper, pimento, sweet pepper), Tomatillo, and Tomato

For control of Broad mite, Colorado potato beetle, *Liriomyza* leafminers, Spider mites, *Thrips palmi*, Tomato psyllid, Tomato pinworm, and Tomato russet mite.

Mix with water as indicated below. Thorough coverage of the crop canopy is essential for optimum results. Inadequate coverage may result in reduced control.

Note: ABACUS® Agricultural Miticide/Insecticide may be applied with ground application equipment or aircraft.

For best control of mites, apply ABACUS® Agricultural Miticide/Insecticide with ground application equipment. With aerial application, spray coverage and the resulting control of mites is less than with ground application. For this reason, the user accepts all liability for the level and duration of control of mites when ABACUS® Agricultural Miticide/Insecticide is aerially applied.

FRUITING VEGETABLES CROPS APPLICATION RATES

Pests	fl. oz. ABACUS® Agricultural Miticide/Insecticide/A
Broad mite Colorado potato beetle <i>Liriomyza</i> leafminers Spider mites Thrips palmi Tomato Psyllid Tomato Russet mite	8.0 - 16.0
Tomato pinworm	16.0

Application Instructions - Fruiting Vegetables Crops

- **Broad, russet, and spider mites:** Apply when mites first appear.
- ***Thrips palmi*:** Apply when thrips are first observed.
- **Tomato pinworm:** Application may be made from the time moth activity is detected up to, but no later than, the time when newly emerged larvae are present.
- **Leafminers:** Apply when adult flies are first observed.
- **Mites, leafminers, Thrips palmi, and Colorado potato beetle:** Use 8 fl. oz./A for low to moderate infestations and 16 fl. oz./A for severe infestations.
- Repeat application as necessary to maintain control. **(See Use Restrictions)**

Note: To avoid illegal residues, ABACUS® Agricultural Miticide/Insecticide may be mixed with a non-ionic activator type wetting, spreading and/or penetrating agent. This additionally improves the wetting of foliage and smoothes out spray deposits. Do not use binder or sticker-type surfactants.

Use Restrictions - Fruiting Vegetables Crops

- Do not apply within 7 days of harvest (PHI).
- Ground or aerial application permitted; however **do not apply with aircraft in New York State.**
- For resistance management, do not use on fruiting vegetables grown for transplanting.
- Do not apply in less than 20 gals. of water/A with ground application equipment. Do not apply in less than 5 gals. of water/A with aircraft. Under conditions such as high pest populations, dense foliage, or adverse application conditions (such as high temperatures) use a greater volume of water to insure adequate coverage.
- Do not apply more than 16 fl. oz./A (or 0.019 lb. a.i./A) of this product or any other foliarly applied abamectin

containing product per application.

- Do not apply at intervals of less than 7 days.
- Do not make more than 2 sequential applications of this product or any other foliarly applied abamectin containing product.
- Do not apply more than 48 fl. oz./A (or 0.056 lb. a.i./A) of this product or any other foliarly applied abamectin containing product in a year.

Grapes

For control of Pacific spider mite, Two-spotted spider mite, Variegated leafhopper, Western grape leafhopper, Western grapeleaf skeletonizer, and Willamette spider mite.

ABACUS® Agricultural Miticide/Insecticide may be applied using conventional ground sprayers calibrated to deliver sufficient water for thorough coverage. Thorough coverage is essential for good spider mite and insect control. Do not spray alternate rows. ABACUS® Agricultural Miticide/Insecticide must be applied to both sides of each row for maximum coverage.

GRAPES APPLICATION RATES

Pests	fl. oz. ABACUS® Agricultural Miticide/Insecticide/A
Pacific spider mite Two-spotted spider mite Variegated leaf hoppers Western grape leafhopper Western grapeleaf skeletonizer Willamette spider mite	8.0 - 16.0 Plus a nonionic surfactant

Application Instructions - Grapes

- Use 8 - 12 fl. oz./A for low to moderate infestations and 16 fl. oz. for severe infestations.
- Repeat application, if needed. (**See Use Restrictions**)
- **Note:** To avoid illegal residues, ABACUS® Agricultural Miticide/Insecticide may be applied in combination with a nonionic surfactant to improve wetting of foliage and to smooth out spray deposits. Spreading and penetrating surfactants can improve insect control. Do not use binder or sticker- type surfactants. Although ABACUS® Agricultural Miticide/Insecticide has been tested in combination with a nonionic surfactant for safety to grapes, it is impossible to test on all grape varieties under the variety of conditions that may cause crop injury. Therefore, when using ABACUS® Agricultural Miticide/Insecticide in combination with a nonionic surfactant, carefully follow the **Directions for Use** and **Precautions** on the nonionic surfactant label and in official spray guides.
- **Spider mites:** Apply when mites first appear but before motiles exceed 5 per leaf.
- **Western grapeleaf skeletonizer:** Apply ABACUS® Agricultural Miticide/Insecticide plus a nonionic. For optimum control, apply shortly after egg hatch.
- **Leafhoppers:** Apply ABACUS® Agricultural Miticide/Insecticide plus a nonionic surfactant using thorough spray coverage for contact knock-down only.

Use Restrictions - Grapes

- Do not apply within 28 days of harvest (PHI).
- Ground application only.
- Do not apply in less than 50 gals. of water/A with conventional ground application equipment. When using an electro-static sprayer, less than 50 gals. of water/A may be used, however do not use less than 5 gals. of water/A.
- Do not apply more than 16 fl. oz./A (or 0.019 lb. a.i./A) of this product or any other foliarly-applied abamectin containing product per application.
- If a second application is necessary, do not apply at intervals less than 21 days.
- Do not make more than 2 applications of this product or any other foliarly-applied abamectin containing product per year.
- Do not apply more than 32 fl. oz./A (0.038 lb. a.i./A) of this product or any other foliarly-applied abamectin containing product per year.
- Do not allow livestock to graze in treated vineyards.
- Do not enter or allow worker entry into treated areas during the restricted-entry interval (REI) of 12 hours.
Exception: For grape girdling, cane turning, and tying in grapes, do not enter or allow worker entry into treated areas during restricted-entry interval (REI) of 4 days.

Herb Crop Subgroup (Crop Subgroup 19A): Crops in this subgroup are: Angelica, Balm,

Basil, Borage, Burnet, Camomile, Catnip, Chervil (dried), Chives, Chives (Chinese), Clary, Coriander (leaf), Cilantro (leaf), Costmary, Culantro (leaf), Curry (leaf), Dill weed, Horehound, Hyssop, Lavender, Lemongrass, Lovage (leaf), Marigold, Marjoram (*Origanum* species), Nasturtium, Parsley (dried), Pennyroyal, Rosemary, Rue, Sage, Summer and Winter savory, Sweet bay, Tansy, Tarragon, Thyme, Wintergreen, Woodruff, and Wormwood

For control of *Liriomyza* leafminers and Spider Mites.

Mix with water as indicated below. Apply thoroughly with ground application equipment as a foliar spray and ensure good upper and lower leaf coverage.

HERBS CROP SUBGROUP APPLICATION RATES

Pests	fl. oz. ABACUS® Agricultural Miticide/Insecticide/A
<i>Liriomyza</i> leafminers Spider Mites	8.0 - 16.0

Application Instructions - Herbs Crop Subgroup

- Use 8 fl. oz./A for low to moderate infestations and 16 fl. oz./A for severe infestations.
- Apply when adult leafminer flies or spider mites are first observed and repeat application, as necessary to maintain control. (**See Use Restrictions**)
- ABACUS® Agricultural Miticide/Insecticide may be used without a wetting agent. When necessary to improve the wetting of foliage and to smooth out spray deposits, a nonionic surfactant is recommended for all crops in the Herb Crop Subgroup except chives. Do not use a surfactant when applying this product to chives.
- **Note:** To avoid illegal residues, ABACUS® Agricultural Miticide/Insecticide may be mixed with a non-ionic activator type wetting, spreading and/or penetrating agent. This additionally improves the wetting of foliage and smoothes out spray deposits.

Use Restrictions - Herb Crop Subgroup

- Do not apply within 14 days of harvest (PHI). For chives, do not apply within 7 days of harvest (PHI).
- Apply with ground application equipment.
- Use a minimum of 20 gals. of water/A.
- Do not apply more than 16 fl. oz./A (or 0.019 lb. a.i./A) of ABACUS® Agricultural Miticide/Insecticide or any other foliarly applied abamectin-containing product per application.
- Do not apply at intervals of less than 7 days.
- Do not make more than 2 applications of this product or any other foliarly applied abamectin containing product per single cutting (harvest).
- Do not apply more than 48 fl. oz./A (or 0.056 lb. a.i./A) of this product or any other foliarly applied abamectin containing product per year.

Hops*

For control of two-spotted spider mites.

HOPS APPLICATION RATES

Pests	fl. oz. ABACUS® Agricultural Miticide/Insecticide/A
Two-spotted spider mites	8.0 - 16.0

Application Instructions - Hops

- Apply ABACUS® Agricultural Miticide/Insecticide when two-spotted spider mites reach treatment thresholds.
- Mix with water as indicated below and apply by ground equipment as a foliar spray to assure good upper and lower coverage.
- Gallonage of spray may vary with the size of plants and density of foliage. In any case, thorough coverage is essential for good control of two-spotted mites. When using concentrate sprays, the amount of water is reduced, but the amount of ABACUS® Agricultural Miticide/Insecticide per acre should remain the same as for dilute sprays.
- If a second application is necessary for control, do not retreat within 21 days of the first application and only after an alternative miticide with a different mode of action has been used.

Use Restriction - Hops

- Do not use less than 16 fl. oz. per application (0.019 lb. of a.i./A) or exceed 32 fl. oz./A (0.038lb. a.i./A) per year of this product or any other foliarly applied abamectin containing product.
- Do not apply within 28 days of harvest.
- Do not apply in less than 40 gals. of water per acre.

- If a second application is necessary to maintain control, do not retreat within 21 days of the first application.
- Do not apply by aircraft.
- Do not permit livestock to graze treated hop yards.

***Not registered for use in California.**

Note: To avoid illegal residues, ABACUS® Agricultural Miticide/Insecticide may be with a non-ionic activator type wetting agent, spreading and/or penetrating agent. This additionally improves wetting of foliage and smoothes out spray deposits.

Leafy Vegetables (except *Brassica* vegetables) Crop Group (Crop Group 4): Crops in this group are: Amaranth (leafy amaranth, Chinese spinach, tampala); Arugula (Roquette); Cardoon; Celery; Celtuce; Chervil; Chinese celery; Chrysanthemum, edible leaved and garland; Corn salad; Cress, garden and upland (yellow rocket and winter cress); Dandelion; Dock (Sorrel); Endive (escarole); Florence fennel; Lettuce, head and leaf; New Zealand Spinach; Orach; Parsley; Purslane, garden and winter; Radicchio (red chicory); Rhubarb; Spinach: Vine spinach: and Swiss chard

For Control of Carmine spider mite, *Liriomyza* leafminers, and Two-spotted spider mite.

LEAFY VEGETABLES CROP GROUP APPLICATION RATES

Pests	fl. oz. ABACUS® Agricultural Miticide/Insecticide/A
<i>Carmine spider mite</i>	8.0 - 16.0
<i>Liriomyza</i> leafminers	Plus a nonionic surfactant
Two-spotted spider mite	

Application Instructions - Leafy Vegetables Crop Group

- Mix with water as indicated below. Thorough coverage of the crop canopy is essential for optimum results. Inadequate coverage may result in reduced control.

Note: ABACUS® Agricultural Miticide/Insecticide may be applied with ground application equipment or aircraft. For best control of mites, apply ABACUS® Agricultural Miticide/Insecticide with ground application equipment. With aerial application, spray coverage and the resulting control of mites is less than with ground application. For this reason, the user accepts all liability for the level and duration of control of mites when ABACUS® Agricultural Miticide/Insecticide is aerially applied.

- Use 8 - 12 fl. oz./A for low to moderate infestations and 16 fl. oz./A for severe infestations.
- **Spider mites:** Apply when mites first appear, and repeat as needed to maintain control. **(See Use Restrictions)**
- **Leafminers:** Apply when adult flies are first observed and repeat applications as needed to maintain control. **(See Use Restrictions)**

Note: To avoid illegal residues, ABACUS® Agricultural Miticide/Insecticide may be mixed a non-ionic activator type wetting, spreading and/or penetrating agent. This additionally improves insect and mite control, wetting of foliage and to smooth out spray deposits. Do not use binder or sticker-type surfactant.

Use Restrictions - Leafy Vegetables Crop Group

- Do not apply within 7 days of harvest (PHI).
- Ground or aerial application permitted; however **do not apply with aircraft in New York State.**
- For resistance management, do not use on leafy vegetables grown for transplanting.
- Do not apply in less than 20 gals. of water/A. with ground application equipment. Do not apply in less than 5 gals. of water per acre with aircraft. Under conditions such as high pest populations, dense foliage, or adverse application conditions (such as high temperatures) use a greater volume of water to insure adequate coverage.
- Do not apply at intervals of less than 7 days.
- Do not make more than 2 sequential applications of this product or any foliarly applied abamectin containing product.
- Do not apply more than 16 fl. oz./A (0.019 lb. a.i./A) of this product or any other foliarly applied abamectin containing product in a single application.
- Do not apply more than 48 fl. oz./A. (0.056 lb. of a.i./A) per year of this product or any other foliarly applied abamectin containing product.

Mint (peppermint and spearmint)

For control of Two-spotted spider mite.

MINT APPLICATION RATES

Pests	fl. oz. ABACUS® Agricultural Miticide/Insecticide/A
Two-spotted spider mites	8.0 - 12.0

Application Instructions - Mint

- Mix with water as indicated below. Thorough coverage of the crop canopy is essential for optimum results. Inadequate coverage may result in reduced control.
- Treat when mites first appear.
- For optimum control, a nonionic surfactant or organosilicone-based surfactant should be used at the manufacturer's recommended rate.

Use Restrictions - Mint

- Do not apply within 28 days of harvest (PHI).
- Ground or aerial application permitted; however **do not apply with aircraft in New York State.**
- Do not apply in less than 20 gals. of water/A with ground application equipment. Do not apply in less than 5 gals. of water/A with aircraft. Under conditions such as high pest populations, dense foliage, or adverse application conditions such as high temperatures, use a greater volume of water to insure adequate coverage.
- Do not apply more than 12 fl. oz./A (0.014 lb. of a.i./A) per application of this product or any foliarly applied abamectin containing product.
- Do not apply at intervals of less than 7 days.
- Do not make more than 2 sequential applications and do not apply more than 3 applications per year of this product or any other foliarly applied abamectin containing product.
- Do not apply more than 36 fl. oz./A (0.042 lb. of a.i./A) per crop per year of this product or any other foliarly applied abamectin containing product.
- Do not allow livestock to graze or feed treated foliage to livestock.

Onion, bulb (Crop Subgroup 3-07A): Crops in this group are: onion, bulb, including daylily, bulb; fritillaria, bulb; garlic, bulb; garlic, great-headed, bulb; garlic, serpent, bulb; lily, bulb; onion, Chinese, bulb; onion, pearl; onion, potato, bulb; shallot, bulb; cultivars, varieties, and/or hybrids of these

For control of *Liriomyza* Leafminers and Thrips.

Mix with water as indicated below. Thorough coverage of the crop canopy is essential for optimum results. Inadequate coverage can result in reduced control.

Note:

- Apply ABACUS® Agricultural Miticide/Insecticide with ground application equipment or aircraft.
- For best control apply ABACUS® Agricultural Miticide/Insecticide with ground application equipment. With aerial application, the resulting control of leafminers and thrips could be less than with ground application.

ONION, BULB APPLICATION RATES

Pests	fl. oz. ABACUS® Agricultural Miticide/Insecticide/A
<i>Liriomyza</i> leafminers Thrips	8.0 - 16.0

Application Instructions - Onion, Bulb

- Use 8 - 12 fl. oz./A for low to moderate infestations and 13 - 16 fl. oz./A for high infestations.
- **Leafminers:** Apply when adult leafminer flies are first observed and repeat application, as needed, to maintain control within constraints of a sound resistance management program. **(See Use Restrictions)**
- **Thrips:** Apply in a thrips management program and when thrips are at economic threshold. Repeat application, as needed, to maintain control within constraints of a sound resistance management program. **(See Use Restrictions.)** Do not use ABACUS® Agricultural Miticide/Insecticide as a rescue treatment for thrips control.

Note: To avoid illegal residues and for best performance, ABACUS® Agricultural Miticide/Insecticide may use a non-ionic activator type wetting, spreading and/or penetrating adjuvant approved for use on bulb onion. Do not use binder sticker type adjuvants. Tank mixing with products that have binder sticker type formulations can reduce ABACUS® Agricultural Miticide/Insecticide performance. **(See Use Information and Use Restrictions)**

Use Restrictions - Onion, Bulb

- Do not apply within 30 days of harvest (PHI).

- Ground or aerial application permitted; however, do not apply with aircraft in New York State.
- Do not apply in less than 20 gal. of water/A with ground application equipment. Do not apply in less than 5 gal. of water/A with aircraft. Under conditions such as high pest populations, dense foliage, or adverse application conditions (such as high temperatures), use a greater volume of water to ensure adequate coverage.
- Do not apply more than 16 fl. oz./A (or 0.019 lb. a.i./A) of this product or any other foliarly applied abamectin containing product per application.
- Do not apply at intervals of less than 7 days.
- Make 2 consecutive applications of ABACUS® Agricultural Miticide/Insecticide then rotate to a chemistry with a different mode of action. Make at least 2 applications of a chemistry with a different mode of action before making additional ABACUS® Agricultural Miticide/Insecticide applications. Do not make more than 2 sequential applications of this product or any other foliarly applied abamectin containing product.
- Do not apply more than 48 fl. oz./A (or 0.056 lb. a.i./A) of this product or any other foliarly applied abamectin containing product in a year.

Pears (including oriental pear trees)

For control of two-spotted spider mites, McDaniel spider mites, European red mites, pear rust mites, yellow mites, and pear psylla (Ground Application Only).

PEARS APPLICATION RATES

Pests	For Dilute Sprays ¹ fl. oz. ABACUS® Agricultural Miticide/Insecticide/100 gals.	For Concentrate Sprays ² fl. oz. ABACUS® Agricultural Miticide/Insecticide/A
Two-spotted spider mite McDaniel spider mite European red mite Pear rust mite Yellow mite Pear psylla	2.5 - 5.0	10 - 20 —
Horticultural Spray Oil*	0.25%	Minimum of 1 gal./A

*Not a dormant oil.

¹The rate of ABACUS® Agricultural Miticide/Insecticide per 100 gals. is based on a volume of 400 gals./A dilute spray.

²To determine the amount of product per acre for concentrate sprays, first determine the amount that would be required in a full cover dilute spray. Use the same amount of product per acre in concentrate sprays as would be required for the dilute sprays to the same orchard/grove. This may result in use of less than 10 fl. oz./A on small trees.

Application Instructions - Pears

- ABACUS® Agricultural Miticide/Insecticide may be applied using conventional dilute or concentrate ground sprayers calibrated to deliver sufficient water for thorough coverage. Gallonage of spray will vary with size and number of trees per acre and density of foliage. In any case, thorough coverage is essential for good spider mite and insect control.
- Always apply in combination with horticultural spray oil (not a dormant oil) as directed.
- Use ABACUS® Agricultural Miticide/Insecticide with a minimum of 0.25% horticultural spray oil (not a dormant oil) in the dilute spray mixture and not less than 1.0 gal. of horticultural spray oil (not a dormant oil) per acre in the final finished spray.

Use Restrictions - Pears

- Do not exceed 20 fl. oz. (0.023 lb. of a.i./A) of ABACUS® Agricultural Miticide/Insecticide per acre per application or 40 fl. oz./A (0.047 lb. of a.i./A) in a year of this product or any foliarly applied abamectin containing product.
- Do not make more than 2 applications per year of this product or any foliarly applied abamectin containing product.
- Do not apply less than 40 gals. of water per acre.
- If a second application is necessary, do not retreat within 21 days of the first application.
- Do not apply within 28 days of harvest.
- Do not apply by aircraft.
- Do not graze treated orchards.

Stone Fruit Crop Group (Crop Group 12): Crops in this group are: apricot, cherry (sweet and tart); nectarine; peach; plum; plum (chickasaw, damson, and Japanese); plumcot, and prune (fresh)

For control of European spider mite, Pacific spider mite, and Two-spotted spider mite.

ABACUS® Agricultural Miticide/Insecticide may be applied using conventional dilute or concentrate sprayers calibrated to deliver sufficient water for thorough coverage. Gallons of spray will vary with size and number of trees per acre and density of foliage. In any case, thorough coverage is essential for good spider mite control.

STONE FRUIT CROP GROUP APPLICATION RATES

Pests	For Dilute Sprays ¹ fl. oz. ABACUS® Agricultural Miticide/Insecticide/100 gals.	For Concentrate Sprays ² fl. oz. ABACUS® Agricultural Miticide/Insecticide/A
European red mite Pacific Spider mite Two-spotted spider mite	2.5 - 5.0	10 – 20
Horticultural Spray Oil (not a dormant oil) OR Nonionic Surfactant	0.25% or 1 gal./A Labeled Rate	Minimum of 1 gal./A

¹The rate of ABACUS® Agricultural Miticide/Insecticide per 100 gals. is based on a volume of 400 gals./A dilute spray.

²To determine the amount of product per acre for concentrate sprays, first determine the amount that would be required in a full cover dilute spray. Use the same amount of product per acre in concentrate sprays as would be required for the dilute sprays to the same orchard/grove. This may result in use of less than 10 fl. oz./A on small trees.

Application Instructions - Stone Fruit Crop Group

- Apply when mites first appear.
- A second application may be made, if needed, to maintain control. (**See Use Restrictions**)
- ABACUS® Agricultural Miticide/Insecticide may be used in combination with a nonionic surfactant that spreads on and/or penetrates the leaf cuticle, or apply with horticultural spray oil (not a dormant oil).

NOTE:

1. A nonionic surfactant that spreads on and/or penetrates the leaf cuticle can improve insect control. Although ABACUS® Agricultural Miticide/Insecticide has been tested in combination with nonionic surfactants for safety to stone fruit, it is impossible to test on all stone fruit varieties under the variety of conditions that may cause crop injury. Therefore, when using ABACUS® Agricultural Miticide/Insecticide in combination with a non-ionic surfactant, carefully follow the **Directions for Use** and **Precautions** on the surfactant label and in official spray guides.
2. A horticultural oil (not a dormant oil) may improve efficacy and can be used but it may increase the possibility of phytotoxicity to foliage and fruit.
 - Use nonionic surfactants at the manufacturer's recommended rate.
 - Use a minimum of 0.25% horticultural spray oil (not a dormant oil) in the dilute spray mixture and not less than 1.0 gal. of horticultural spray oil per acre in the final finished spray.

Use Restrictions - Stone Fruit Crop Group

- Do not apply within 21 days of harvest (PHI).
- Ground application only. Do not apply with aircraft.
- Do not apply in less than 40 gals. of water per acre.
- If a second application is necessary, do not retreat within 21 days.
- Do not apply more than 20 fl. oz./A (or 0.023 lb. a.i./A) of this product or any other foliarly applied abamectin containing product per application.
- Do not make more than 2 applications of this product or any other foliarly applied abamectin containing product in a year.
- Do not apply more than 40 fl. oz./A (0.047 lb. a.i./A) of this product or any other foliarly applied abamectin containing product in a year.
- Do not allow livestock to graze in treated groves/orchards.

Strawberries

For control of two-spotted spider mites.

STRAWBERRIES APPLICATION RATE

Pests	fl. oz. ABACUS® Agricultural Miticide/Insecticide/A
Two-spotted spider mites	16.0

Application Instructions - Strawberries

- Adjust spray volume and nozzle placement to assure maximum coverage of tops and undersides of leaves.
- Use 16 fl. oz. of ABACUS® Agricultural Miticide/Insecticide per acre. Make 2 applications 7-10 days apart when mites first appear.
- Repeat this sequence of application if necessary to maintain control.

Use Restrictions - Strawberries

- Do not exceed 16 fl. oz./A (0.019 lb. a.i./A) per application or 64 fl. oz./A (0.075 lb. a.i./A) in a year of this product or any foliarly applied abamectin containing product.
- Do not apply within 3 days of harvest (PHI).
- For resistance management purposes, do not use in strawberry nurseries.
- Do not apply in less than 50 gals. of water per acre of this product or any other foliarly applied abamectin containing product.
- Do not repeat treatment within 21 days of second application.
- Do not apply by aircraft.

Note: To avoid illegal residues, ABACUS® Agricultural Miticide/Insecticide may be mixed with a non-ionic wetting, spreading, and/or penetrating agent and using a nonionic surfactant improved the wetting of foliage and to smooth out spray deposits.

Tree Nuts Crop Group (Crop Group 14) and Pistachio: Crops in this group are: almond, beech nut, Brazil nut, butternut, cashew, chestnut, chinquapin, filbert (hazelnut), hickory nut, macadamia nut, pecan, and walnuts (black and English)

For control of two-spotted spider mite, strawberry spider mite, Pacific spider mite, and European red mite (Ground Application Only).

ABACUS® Agricultural Miticide/Insecticide may be applied using conventional dilute or concentrate sprayers calibrated to deliver sufficient water for thorough coverage. Gallons of spray will vary with size and number of trees per acre and density of foliage. In any case, thorough coverage is essential for good spider mite and insect control.

TREE NUTS CROP GROUP AND PISTACHIO APPLICATION RATES

Pests	For Dilute Sprays¹ fl. oz. ABACUS® Agricultural Miticide/Insecticide/100 gals.	For Concentrate Sprays² fl. oz. ABACUS® Agricultural Miticide/Insecticide/A
Two-spotted spider mite Pacific spider mite Strawberry spider mite European red mite	2.5 - 5.0	10 – 20
Horticultural Spray Oil (not a dormant spray)	0.25% or 1 gal./A	Minimum of 1 gal./A

*Not a dormant spray.

¹The rate of ABACUS® Agricultural Miticide/Insecticide per 100 gals. is based on a volume of 400 gals./A dilute spray.

²To determine the amount of product per acre for concentrate sprays, first determine the amount that would be required in a full cover dilute spray. Use the same amount of product per acre in concentrate sprays as would be required for the dilute sprays to the same orchard/grove. This may result in use of less than 10 fl. oz./A on small trees.

Application Instructions - Tree Nuts Crop Group and Pistachio

- ABACUS® Agricultural Miticide/Insecticide may be used in combination with a horticultural spray oil (not a dormant oil) approved for use on tree nuts.
- Apply ABACUS® Agricultural Miticide/Insecticide when spider mites first appear. Residual spider mite control is greater from spray deposits on newer leaves compared to older leaves.
- A second application may be made, if needed, to maintain control. **(See Use Restrictions)**

Use Restrictions - Tree Nuts Crop Group and Pistachio

- Do not apply within 21 days of harvest (PHI).
- Ground application only. Do not apply with aircraft.
- Do not apply in less than 40 gals. of water per acre.
- If a second application is necessary, do not retreat within 21 days.
- Do not apply more than 20 fl. oz./A (or 0.023 lb. a.i./A) of this product or any other foliarly applied abamectin containing product per application.
- Do not make more than 2 applications of this product or any other foliarly applied abamectin containing product in a year.
- Do not apply more than 40 fl. oz./A (0.047 lb. a.i./A) of this product or any other foliarly applied abamectin containing product in a year.
- Do not allow livestock to graze in treated groves/orchards.

Tuberous and Corm Vegetables Crop Subgroup (Crop Subgroup 1C): Crops in this

subgroup are: arracacha; arrowroot; artichoke, Chinese; artichoke, Jerusalem; canna, edible; cassava (bitter and sweet); chayote (root); chufa; dasheen; ginger; leren; potato; sweet potato; tanier; tumeric; yam bean; and yam (true)

For control of Colorado potato beetle, *Liriomyza* leafminers, Potato psyllid, and spider mites.

Mix with water as indicated below. Thorough coverage of the crop canopy is essential for optimum results. Inadequate coverage may result in reduced control.

Note: ABACUS® Agricultural Miticide/Insecticide may be applied using ground application equipment or aircraft. For best control of mites, apply ABACUS® Agricultural Miticide/Insecticide with ground application equipment. With aerial application, spray coverage and the resulting control of mites is less than with ground application. For this reason, the user accepts all liability for the level and duration of control of mites when ABACUS® Agricultural Miticide/Insecticide is aerially applied.

TUBEROUS AND CORM VEGETABLES CROP SUBGROUP APPLICATION RATES

Pests	fl. oz. ABACUS® Agricultural Miticide/Insecticide/A
Colorado potato beetles <i>Liriomyza</i> leafminers Potato psyllid Spider mites	8.0 - 16.0

Application Instructions - Tuberous and Corm Vegetables Crop Subgroup

- Use 8 - 12 fl. oz./A for low to moderate infestations and 16 fl. oz./A for severe infestations.
- The addition of a nonionic surfactant or organosilicone-based surfactant, at the manufacturer's recommended rate, is suggested for optimum spider mite and insect control.
- Insect and spider mite control may be reduced if ABACUS® Agricultural Miticide/Insecticide is used in combination with a sticker or binder type product such as Bravo® Weather Stik®.
- **Colorado potato beetle:** Make the first application after approximately 50% of the egg masses have hatched and larvae are present. If 2 applications are needed, limit them to a single Colorado potato beetle generation per crop. Do not make more than 2 applications per crop. **(See Use Restrictions)**
- ***Liriomyza* leafminers:** Make the first application when adult flies are first observed. Repeat applications as needed to maintain control. **(See Use Restrictions)**
- **Spider mites:** Make the first application when mites first appear. Repeat application as needed to maintain control. **(See Use Restrictions)**

Use Restrictions - Tuberous and Corm Vegetables Crop Subgroup

- Do not apply within 14 days of harvest (PHI).
- Ground or aerial application permitted; however do not apply with aircraft in New York State.
- Do not apply in less than 20 gals. of water with ground application equipment. Do not apply in less than 5 gals. of water/A with aircraft. Under conditions such as high pest populations, dense foliage, or adverse application conditions (such as high temperatures) use a greater volume of water to insure adequate coverage.
- Do not apply more than 16 fl. oz./A (or 0.019 lb. a.i./A) per application.
- Do not apply intervals of less than 7 days.
- Do not make more than 2 sequential applications of this product or any other foliarly applied abamectin containing product.
- For spider mite or Colorado potato beetle control, do not apply more than 32 fl. oz./A (or 0.038 lb. a.i./A) of this product or any other foliarly applied abamectin containing product per year.
- For leafminer control, do not apply more than 48 fl. oz./A. (or 0.056 lb. a.i./A) of this product or any other foliarly applied abamectin containing product per year.
- Do not allow livestock to graze or feed treated foliage to livestock.

STORAGE AND DISPOSAL

Do not contaminate water, food, or feed by storage or disposal. Open dumping is prohibited.

Pesticide Storage: Store in a tightly closed container in a cool, dry place.

Pesticide Disposal: Pesticide spray mixture or rinsate that cannot be used should be disposed of in a landfill approved for pesticides. Improper disposal of excess pesticide spray mixture or rinsate is a violation of Federal law. If these wastes cannot be disposed of by the use according to label instructions, contact your State Pesticide or Environmental Control Agency or the Hazardous Waste representative at the nearest EPA Regional Office for guidance.

Container Handling (Nonrefillable Container): Do not reuse this container to hold materials other than pesticides or dilute pesticides (rinsate). After emptying and cleaning, it may be allowable to temporarily hold rinsate or other pesticide-related materials in the container. Contact your State regulatory agency to determine allowable practices in your State. Offer for recycling, if available. If not, dispose of in a sanitary landfill or by burning, if allowed by State law. If burned, keep out of the smoke.

Residue Removal: Triple rinse or pressure rinse container (or equivalent) promptly after emptying. Triple rinse as follows: Empty the remaining contents into application equipment or a mix tank and drain for 10 seconds after the flow begins to drip. Fill the container ¼ full with water and recap. Shake for 10 seconds. Pour rinsate into application equipment or a mix tank or store rinsate for later use or disposal. Drain for 10 seconds after the flow begins to drip. Repeat this procedure two more times. Pressure rinse as follows: Empty the remaining contents into application equipment or a mix tank and continue to drain for 10 seconds after the flow begins to drip. Hold container upside down over application equipment or mix tank or collect rinsate for later use or disposal. Insert pressure rinsing nozzle in the side of the container, and rinse at about 40 PSI for at least 30 seconds. Drain for 10 seconds after the flow begins to drip.

FOR CHEMICAL EMERGENCY: Spill, leak, fire, exposure, or accident, call CHEMTREC AT 1-800-424-9300.

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